ACTA THERIOLOGICA
Vol. 24, 11: 115—122, 1979

Fragmenta Theriologica

The Flying Fox Pteropus tonganus in the Cook Islands and on Niue Island, Pacific Ocean

Pteropus tonganus wysp Cooka i wyspy Niue

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Hill J.E. 1979: The flying fox *Pteropus tonganus* in the Cook Islands and on Niue Island, Pacific Ocean. Acta theriol., 24, 11: 115—117 [With 1 Table]

Reports of flying foxes on the island of Raratonga in the Cook Islands are supported by specimens collected in 1926 and for many years unidentified in the collections of the British Museum (Natural History). They are referred to *Pteropus tonganus tonganus*, known hitherto from the Fiji, Samoa and Tonga Islands and from Niue Island, and extend at least the former range of the genus in the southern Pacific considerably further to the east. An adult example of *P. t. tonganus* from Niue, previously overlooked, is also recorded.
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In Polynesia the certain occurrence of fruit bats of the genus *Pteropus*, the flying foxes, on the Samoa and Tonga Islands and on Niue Island a little further east has been long established by observation and specimens, and until recently these islands have been thought to be at the easternmost limit of its distribution. However, Krzanowski (1977: 271) has drawn attention to an account by Smith (1902) that mentions flying foxes on the island of Raratonga, at 21° 14′ S, 159° 46′ W in the Cook Islands, 1086 km ESE of Niue. Krzanowski also cited remarks by Gill (1876) that discuss the presence of bats on Mangaia, a yet more easterly island of the Cook group, lying 1282 km ESE of Niue at 21°55′ S, 157°55′ W, and added (p. 272) that Dr. K. Wodzicki of Wellington, New Zealand had been informed that bats still occur on this island. A further reference to bats in the Cook Islands is provided by Whitley (1933: 25) who visited Raratonga and reviewed its natural history. This author noted that »A species of flying fox, known as mokirikiri, is sometimes seen among coconut trees, but is regarded as a pest and is shot for a reward of threepence a head. Unfortunately, only one or two were seen during my visit and I have so far been unable to secure a specimen. This bat is said to have been introduced from Mangaia, a neighbouring island, by the chiefs of old, who appreciated its flesh, but may migrate from one island to another«.

The reports of flying foxes on Raratonga are supported by three specimens from that island, now in the collections of the British Museum (Natural History). Two young males and a young female, they are from the collection of George E. Mason, purchased in 1934 from E. Gerrard & Sons, dealers in natural history specimens, and although then

accessed as BM(NH) 34.7.2.2-4 have since remained unidentified. From their labels it is clear that all were obtained at Tetauru, Raratonga, on 16th August 1927 by Dr. O. [M.] Olsen, evidently while with the Oslo Zoologisk Museum Polynesia Expedition, 1926—27. Each consists of a skin with skull, bearing the original labels of this expedition, apparently completed by the collector, the labels on the skins giving the locality and date of collection, with some measurements. The skins have also been given a larger, typed label by Mason that adds »Ex Resident Commissioner Cook Island Administration«, suggesting that he acquired the specimens by this indirect route. The collections

Table 1

Measurements (in millimetres) and cranial proportions of *Pteropus tonganus tonganus* from Raratonga Island, Cook Islands and Niue Island.

Measurement	♂ BM(NH) 34.7.2.2 Raratonga I	♂ BM(NH) 34.7.2.3 Raratonga I	♀ BM(NH) 34.7.2.4. Raratonga I	— BM(NH) 34.7.2.54. Niue I
Length of forearm	—	—	—	143
Greatest length of skull (Gls)	60.9	60.2	—	62.3
Condylobasal length	59.7	58.7	—	60.9
Length of rostrum (Lr)	26.6	26.2	26.1	27.0
Length of braincase (Lb)	37.8	37.9	—	39.1
Width of rostrum above m^2 (Wr)	16.3	16.2	16.3	16.8
Interorbital width	6.7	6.8	6.7	7.8
Postorbital width	6.5	6.7	7.9	6.1
Zygomatic width	33.1	31.8	29.3	32.3
Width of braincase (Wb)	21.1	21.1	—	21.7
Orbital diameter	12.4	12.1	11.3	12.3
c — m^2 (alveoli)	23.1	22.3	21.7	23.6
Lr : Lb *	41 : 59	41 : 59	—	41 : 59
Lr : Wr	62 : 38	62 : 38	61 : 38	62 : 38
Wr : Gls	21 : 79	21 : 79	—	21 : 79
Wr : Wb	43 : 56	43 : 56	—	43 : 56
Wb : Gls	26 : 74	26 : 74	—	26 : 74

* *i.e.*, $x:y=x\left(\frac{100}{x+y}\right) : y\left(\frac{100}{x+y}\right)$

of the Zoologisk Museum at Oslo do not include any specimens of *Pteropus* collected by this Expedition (P e t e r s e n, pers. comm.) and it is possible that no others were obtained.

The specimens from Raratonga are clearly referable to *Pteropus tonganus*, with dorsally naked tibia and unreduced rostrum. They are predominantly blackish but with a pale, creamy buff mantle, the crown of the head and the temporal region blackish seal brown, sometimes

tinged with buff, slightly russet around the eyes and at the base of the ears. The lower part of the throat is irregularly banded with buffy brown or russet brown, becoming paler and merging into the mantle on the shoulders. In colour they agree closely with specimens of *P. tonganus* from the Fiji and Tonga Islands and with one from Niue Island, although among these the mantle often has a more orange tinge. measured by Felten (1964: 677) and have identical or closely similar in size to the smaller of *P. tonganus* from Fiji, Uvea, Samoa and Tonga measured by Felten (1964: 677) and have identical or closely similar cranial proportions. Smith (1902) considered the fruit bats of Raratonga to be conspecific with those of Niue Island and in fact these young animals have no features suggesting that they should not be referred to the nominate subspecies *P. t. tonganus*, hitherto considered to extend from the Fiji Islands eastward to Niue Island. Although Gill (1876) implied that the bats that he reported from Mangaia were the same as those to be found on Samoa and on Savage (= Niue) Island, the measurements that he provides suggest a bat rather smaller than *P. t. tonganus*, but could be those of a young individual. In discussing *P. t. tonganus* from Niue Island Wodzicki & Felten (1975: 132, tab. 1, 133) had but one adult, a female, for study, although a further five immature examples were reported by these authors: the Mason collection includes a further adult from Niue, its sex unknown, BM(NH) 34.7.2.54. It agrees closely with the description and measurements of the specimen examined by Wodzicki & Felten.

There is considerable evidence (Wodzicki & Felten, 1975: 137) that the fruit bats on Niue Island have been greatly reduced in numbers through the depletion of suitably forested habitats and by hunting with modern weapons, although on this island the shooting of flying foxes is now totally prohibited. It is possible that a similar decline may have occurred in the Cook Islands but the group has been visited so rarely by zoologists or others interested in its fauna that a limited or variable population of bats might remain almost unnoticed. Few bats were seen by Whitley on Raratonga some fifty years ago yet at times they seem to have been sufficiently numerous to be a pest of cultivated fruit and to attract a reward for their destruction, and it is possible that flying foxes still occur on that island.

My thanks are due to Dr. Karl F. Koopman of the American Museum of Natural History, who discovered the specimens from Raratonga and Niue Islands in the collections of the British Museum (Natural History), and to Dr. J. A. Petersen of the Zoologisk Museum, Oslo, who provided information about the collections there and also a short biography of Dr. O. M. Olsen.

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Accepted, September 20, 1978.